

SYNOPSIS OF THE NORTH AMERICAN FLIES OF THE GENUS *SCELLUS*.

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INTRODUCTION.

This synopsis is based on a large series of specimens. The location of the type is designated under each species where it is known.

I wish to acknowledge my thanks to Dr. J. M. Aldrich for his criticism; to C. W. Johnson for the records which he supplied; to Nathan Banks for the loan of a species from the collection of the Museum of Comparative Zoology at Cambridge, Massachusetts; and to Dr. A. L. Melander who loaned me all his material of this genus. Doctor Aldrich donated the type material of several species to the national collection.

HISTORICAL OUTLINE OF THE GENUS.

The genus *Scellus* was established by Loew in 1857¹ with the two species *Hydrophorus notatus* Zetterstedt and *Hydrophorus spinimanus* Zetterstedt. Coquillett in 1910² designated *Hydrophorus spinimanus* Zetterstedt as type of the genus.

The three genera *Scellus*, *Hydrophorus*, and *Liancalus* form a distinct subfamily of the Dolichopodidae and are characterized by having the last section of the fifth vein shorter than the posterior cross-vein, the hairs on the back of the head below forming a scattered beard (instead of a ruff in a single row bordering the eye), the hypopygium is directed backward or downward, not turned forward under the venter.

Liancalus is easily separated by having slender fore femora and elongated fore coxae. *Hydrophorus* and *Scellus* are more closely related but can be easily separated. *Scellus* has long spines on the under side of the fore femora and distinct, narrow, longitudinal lines on the dorsum of the thorax. *Hydrophorus* has only small spines on the under side of the fore femora, and the dorsum of the thorax unmarked with the longitudinal lines. Sometimes there is a very faint trace of these lines.

¹ Neue Beiträge, 1857, pt. 5, p. 22.

² Type-species of the North American Diptera, Proc. U. S. Nat. Mus., 1910, vol. 37, p. 603.

The species of *Hydrophorus* always frequent the edges of water and are often seen running over its surface. *Scellus* is never seen at water, but is found on the bark of trees, on the ground, or in grass. *Liancalus* is found on rocks in cold wet places.

The males of *Scellus* can be divided into two groups. The male appendages are ribbonlike. In one group the appendage has a spoonlike enlargement at the apex, while the other group is without this enlargement at the apex.

KEY TO MALES.

1. Third joint of antenna very long pointed..... No. 1, **virago** Aldrich.
Third joint of antenna very short..... 2
2. Caudal appendage ribbonlike, with a spoonlike enlargement at the apex 3
Caudal appendage without an enlargement at the apex..... 6
3. Spoonlike tip of appendage infuscated..... 5
Spoonlike tip of appendage not infuscated..... 4
4. Spoonlike tip of appendage pale; hind femur very thick, strongly curved at base with a cluster of short, thick spines on the underside,
No. 2, **exustus** (Walker).
Spoonlike tip of appendage light ochre yellow; hind femur straight, slender,
No. 3, **spinimanus** (Zetterstedt).
5. Hind tibia with two large, spinelike bristles at the apex, the larger one bent like a corkscrew..... No. 4, **monstrosus** Osten Sacken.
Hind tibia normal; front tibia notched near the apex, terminating into an oblique point..... No. 8, **avidus** Loew.
6. Caudal appendage with an enlargement near the middle,
No. 6, **amplus** Curran.
Caudal appendage without enlargement..... 7
7. Appendage short, whitish on apical half, infuscated on basal half; hind femur with pale, villous hairs on inner surface near middle,
No. 5, **vigil** Osten Sacken.
Appendage nearly as long as the abdomen, pale, infuscated at extreme base: hind femur without villous hairs..... No. 7, **filiferus** Loew.

KEY TO FEMALES.

1. Third joint of antenna very long and narrow..... **virago** Aldrich.
Third joint of antenna short..... 2
2. Shining, metallic, large species..... 3
Dull metallic surfaces heavily dusted, smaller species..... 5
3. Halteres brownish-black, pale at base; legs bronze-black, sub-shining,
exustus (Walker).
Halteres pale; legs not as above..... 4
4. Legs shining, dark metallic green; abdomen shining with metallic green reflection..... **monstrosus** Osten Sacken.
Legs sub-shining with a deep reddish-bronze reflection; abdomen with deep reddish-bronze reflection..... **avidus** Loew.
5. Front tibia with four long, macrochaetae on under side,
spinimanus (Zetterstedt).
Front tibia with two long macrochaetae on under side..... 6
6. Front tibia with two macrochaetae of equal length on the front side near the middle..... **amplus** Curran.
Front tibia with two macrochaetae of unequal length..... 7
7. Femora metallic green..... **filiferus** Loew.
Femora bronze, with reddish tinge..... **vigil** Osten Sacken.

1. SCELLUS VIRAGO Aldrich.

Plate 1, fig. 8; plate 2, figs. 15 and 19; plate 3, fig. 28.

Scellus virago ALDRICH, Entomological News, 1907, April, p. 133.

"Large species, with yellowish-brown wings and greatly elongated antennae, with apical arista."

"*Male*.—Head densely yellowish-brown pollinose, the face more ochre yellow; eyes elongated vertically, the face slender; about eight black bristles behind the eye above, and a pair on the occiput; antennae inserted higher up, as long as the vertical diameter of the eye, slender, the third joint nearly twice as long as the first two, with a short two-jointed, apical arista.

"Thorax thickly dusted, still with a faint coppery or rosaceous reflection showing through on dorsum and sides. Pollen of the dorsum grayish in the middle, with two very fine lines in the center, inclosing the single row of six or eight tiny, acrostichal bristles; dorsocentral bristles in two rows, very small except the posterior two of each row, with slight dots from which the separate bristles arise; along each side of the dorsum a darker pollinose stripe above the pleural suture; before the scutellum a median darker stripe, continuing the two fine median lines to the scutellum (the insertion of the pin prevents my describing this more closely); scutellum more bright coppery red, with two bristles; pleura uniformly and densely pollinose with gray, the coppery ground color but little visible. Halteres yellow.

"Abdomen less pollinose and more coppery than the thorax, of four well-developed segments, the others modified; fourth segment one-third as long as the preceding one; the 'anal appendages' arise on the dorsal side between the fourth and fifth segments they are a pair of delicate organs, black at base, whitish beyond, each ending in a spoon-shaped, orange-colored enlargement, which bears a dense series of small, dark hairs along the outer side and a tuft of similar ones on the inner apical angle; third abdominal segment protuberant below, the grasping organs of the hypopygium projecting behind it.

"Legs blackish-green, somewhat pollinose, of complicated structure. Fore femora with the usual spines beneath; fore tibiae with a row of stiff hairs on the inner side beyond the middle and a stout thumblike curved claw on the anterior side before the end; also, with a striking lobe or lappet on the inner side of the tip. Middle femora slender, a little arcuated; middle tibiae with a row of erect bristles on the anterior side past the middle, and curled long hairs on the posterior side at the tip. Hind femora, tibiae and tarsi of plain structure, the tibiae without noticeable bristles at the tip.

"Wings brownish-yellow on the basal half, more brown apically; a large brown spot on the posterior cross-vein and another on the

arcuation of the fourth vein, before and beyond the latter vein is widely bordered with yellow. Length, including appendages, 7 mm.; of the wing, the same.

"*Female*.—Antennae much shorter, the third joint a little longer than the other two, arista apical, a little longer than in the male. Abdomen of five equal segments. Legs destitute of striking modifications, however, the spines under the fore femora are as large as in the male. Wings as in the male. Length 7.2 mm."

A male, collected at Palo Alto, California, October 11, 1905, J. M. Aldrich, collector. A male and female taken in same locality October 11, 1906, by R. W. Doane, collector.

Type.—Male; allotype female, Cat. No. 26042, U.S.N.M.

Type locality.—Salt marshes near Palo Alto, California, October 7, 1905.

Originally described from three specimens.

Also from salt marshes, San Francisco Bay, October 11, 1906, R. W. Doane, collector. Yellowstone Park Upper Geyser Basin, August 7, 1918, A. L. Melander, collector (A. L. M.). Great Salt Lake, Utah, M. C. Van Duzee, collector (C. W. J.).

2. *SCELLUS EXUSTUS* (Walker).

Plate 1, fig. 4; plate 2, figs. 12 and 18, plate 3, fig. 25.

Medeterus exustus WALKER, *Insecta Saundersiana*, Diptera, vol. 1. p. 211.
Scellus exustus WALKER, ALDRICH, *Entomological News*, 1907, April, p. 135.
Scellus exustus WALKER, *Neue Beitr.*, pt. 8, p. 71, species 1.

"*Male and female*.—Thoracis dorso aeneo-nigro opaco, abdomine supreo, later versus viridi, nitidissimo, halteribus nigris, alis nigricantibus adversus costam nigris, lamellis analibus maris albis, in basi nigris, apicem versus flavis, in summo apice puncto nigro notatis.

"The upper side of the thorax bronze-black, opaque; the abdomen copper-colored, literally green, very bright; halteres black; wings blackish, toward the fore margin entirely black; the anal appendages of the male are white, near the root black, toward the tip yellow, at the extreme tip with a black spot. Long. corp. 0.22. Long. al. 0.26. Syn. *Medeterus exustus* Walker. Dipt. Saund. 211.

"*Male*.—Black. The face rather narrow, opaque from a bright ochre-yellow dust. Antennae black. Front covered with white dust. The middle of the upper side of the thorax is, at least in my specimen, black, opaque, and exhibits some traces of gray dust; toward the lateral margin it is more bright and shows a less distinct coppery reflection; on the lateral margin itself there is a broad longitudinal stripe covered with white dust. Scutellum with two bristles, opaque upon the middle, with a thin, almost imperceptible coat of

white dust, bright on the sides. Pleurae bronze-black, on the upper half with a dusky copper-colored reflection, on the lower half with a thin gray-whitish dust. Abdomen brilliant coppery-red, in a certain light it appears brass-colored upon the posterior segments, in an oblique direction even green; its first segment almost reddish-violet. The upper appendages, peculiar to the males of *Scellus*, are of a very considerable length, white, near the root black, somewhat enlarged at the tip, curved toward each other and of a yellow color, at the extreme tip black and provided with a tuft of pale hairs, which are turned backward. Coxae black, with a thin white-grayish dust, the foremost with extremely short pale hairs, with a few stiff black little hairs and near the tip with a few black bristles. Feet black, the femora more metallic green-black, with coppery reflections; the fore femora short, but very much thickened, toward the basis on the whole underside beset with bristles of different length, on the anterior side with a row of stiff black bristles; middle femora elongated, thin, gently curved, on the underside almost entirely bare; the hind femora near the basis of the underside are enlarged into a large, blunt appendage, beset with large black spines, beyond this appendage there is an archlike excision; then again they are stouter and beset on the underside with black bristles. The fore tibiae, which are comparatively stout, bear on the front side, not far from basis, a stout black thorn, their tip is elongated into a coarse tooth and their underside, which is beset with black bristles, has somewhat before this tooth a small excision; middle tibiae long and rather slender; their first half has only three short bristles; the second is fringed on the front with a row of short black bristles; upon the posterior side somewhat beyond the middle, there are a few long black bristles, and between these and the tip of the tibia, some long, curly black hairs. The hind tibiae are much stronger than the middle tibiae, their first half is stouter than the second and the front side before the tip is armed with a strong black bristle. Tarsi plain, their joints of decreasing length, the first joint of the middle tarsi with a few bristles. Halteres brownish-black. Wings blackish, all their veins broadly margined with black; the margins of the costa and of the first four longitudinal veins are entirely confluent, so that the anterior part of the wings appears altogether black; upon the middle of the posterior transverse vein and upon the curve of the last segment of the fourth longitudinal vein there is a black spot; the costal cell is of a dark brown color.

“*Female*.—The only female which I possess is not as well preserved as the described male, especially the characters of the face can not be recognized with certainty; I would therefore recall the

circumstance that the face of most of the females of *Scellus* is less yellow than in the males. The first joint of the antenna in the female is considerably shorter than that of the male. Fore femora and fore tibiae less stout, though the tip of the latter has also a denticiform but less stout elongation; their under side has no excision before this tooth and the front side of the tibiae no thorn. Middle femora not curved, on the larger half of their under side with a few sparse bristles. Middle tibiae plain, upon the first half with a considerable number of black bristles, upon the latter part of the posterior side without the curly hairs which are found in the males. Hind femora plain, slender toward the tip, but very little stronger upon the second part of the underside with about six rather strong black bristles. Hind tibiae without the strong bristle which, in the males, exists at the tip of the front side."

Habitat.—Middle States. (Osten Sacken); Illinois. (Le Baron.)

Type locality.—Bolton. North America.

Distribution.—Moscow, Idaho, June 14–18, 1895, June 19, 1900, and July 27–28, 1910. Brookings, South Dakota, I. H. Orcutt, collector. Hunter's Creek, Wyoming, September 11, 1895. Tennessee Pass, Colorado, July 24, 1917, J. M. Aldrich, collector. Ipswich, Mass., June 19, 1870, F. G. Sanborn, collector. Ottawa, Canada, no date (collection of C. V. Riley). Chicago, Illinois, July 5, 1895, June 9, 1899. Pullman, Washington, May 29, 1910, June 28, 1908, W. M. Mann, collector. McHenry, Illinois, June, 1900. Moscow Mountain, Idaho, July 8, 1916 (A. L. M.). Buffalo, N. Y., M. C. Van Duzee, collector. Chambly County, Quebec, Changnon, collector (C. W. J.). Orono, Maine. Hampton, N. H. Shoreham, Vt. (B. S. N. H.).

3. *SCELLUS SPINIMANUS* (Zetterstedt).

Plate 1, fig. 1; plate 2, fig. 9; plate 3, fig. 24.

Hydrophorus notatus ZETTERSTEDT (not Fabricius), *Insecta Lapponica*, p. 701, No. 4.

Hydrophorus spinimanus ZETTERSTEDT, *Diptera Scandinaviae*, vol. 2, p. 445, No. 5.

Scellus spinimanus Zetterstedt, LOEW, *Monograph of North American Diptera*, vol. 2, p. 204, No. 2.

Scellus spinimanus Zetterstedt, ALDRICH, *Entomological News*, vol. 18, April, 1907, pp. 135–136.

"*Male and female*.—Thoracis dorso obscure aeneo, albido-pollinose, opaco, abdomine ex viridi cupreo, nitido, halteribus subfuscis, alis nigris, basi et costae dimidiae limbo subalbidis, margine postico toto cinereo, lamellis analibus maris albis, basim versus infra nigro-marginatis, apicem versus flavis, in summo apice puncto fusco notatis.

"The upper side of the thorax dusky bronze-colored, with whitish dust; abdomen coppery-green, bright; halteres brownish; wings

black, though the root and the margin of half the costa is whitish, the whole posterior margin gray; anal appendages of the male white, toward the basis on the under side with a black margin, toward the tip yellow, at the extreme tip marked with a brown spot. Long. corp. 0.15. Long. al. 0.19.

"*Male*.—Blackish bronze-colored. The face is comparatively a little broader than in *S. exustus*, covered with bright ochre-yellow dust and opaque. Antennae black. Front with whitish dust. The ground color of the thorax is of a coppery-bronze; upon the middle of the upper side more of a blackish-bronze, but almost everywhere so thickly covered with dust that the coppery luster is only very little perceptible; the dust on the upper side of the thorax is snow-white, upon the two longitudinal stripes near the lateral margin it is less thick, so that the coppery reflection of the ground-color is more distinct; upon the middle there are two narrow, dark longitudinal lines, close to each other, which do not reach as far as the posterior margin of the thorax. Upon the pleurae the color of the dust is more yellowish. The scutellum has two bristles, is rather opaque, with a thin whitish dust. Abdomen green, mostly with a coppery luster, which becomes much more bright near the lateral margin. The anal appendages are of middling length, white, near the basis of the lower margin with a narrow black border, and on the upper margin usually marked with a black spot; beyond the middle they are inflected upward and gradually assume a yellow color; their extreme tip is marked with a small brown spot and bears a small tuft of delicate pale hairs, which are turned backward; about the middle of the interior margin there is a similar pubescence; between them, toward the anal region, there is a small tuft of delicate whitish hairs. Coxae bronze-black; the four anterior with yellow and the two hind ones with a rather whitish dust; the fore coxae with very short and delicate pale hairs, near and upon the tip with a few black bristles. Feet black, femora and tibiae more black-green, the former bright coppery. Fore femora short, toward the basis very much thickened, beset on the under side with bristles of different length, on the front side with a row of stiff black bristles. Middle femora long, stronger than in *S. exustus* and more curved, on the latter half of the under side with erect black bristles. Hind femora of a plain structure, not stouter than the middle femora; their under side has only, close before the tip, a few black bristles. The comparatively stout fore tibiae have on their front side, not far from their basis, a stout black thorn; their tip is elongated into a very stout tooth, before which the under side of the tibiae, which is beset with strong bristles, has a small excision. Middle tibiae not quite so long and slender as those of *S. exustus*, on the upper side only with three or four short bristles, on the under side with a row of extremely long, straight, erect

black bristles, and on the hind side with long curved hairs, which latter are more dense near the tip and curl up to the shape of a lock of hair. Hind tibiae plain, scarcely stouter than the middle tibiae; on the upper side, not far from the basis, there is a strong bristle, and on the latter half a few small bristles; the under side is beset with short small bristles, which are isolated upon the first part and closer together and in more regular order upon the second half; at the end of the under side there is a considerable number of less strong and less short bristles, of which the last is distinguished by its greater length; on the outside of the tip of the tibiae there are several short and one longer and curved bristle, which has almost the thickness of a thorn. Tarsi plain, the joints of decreasing length, the first joint of the fore and of the middle tarsi with more, that of the hind tarsi with less bristles. Halteres yellowish-brown, the lower part of the knob more dark. The wings of uniform breadth and at the end more rounded than in the other species; an uncommonly large black spot covers their apical half with the exception of a broad gray border on the posterior margin, and extends as a broad cloud along the fifth longitudinal vein almost as far as the anal cell; inside of the discoidal cell it is somewhat paler, otherwise, however, so dark that the two black spots, peculiar to this genus, upon the posterior transverse vein and upon the last segment of the fourth longitudinal vein, can only be perceived when the wing is held toward the light; the anterior part of the wing from the basis as far as the middle is dingy-whitish hyaline; the anal angle and a broad border along the posterior margin are more hyaline-gray."

Habitat.—Fort Resolution, Hudson Bay Territory (Kennicott).

Female.—It is distinguished from the male by the following characters: Face with pale yellow-grayish, front with brown dust. The middle of the upper side of the thorax with yellow-brownish dust, marked with a few spots of whitish dust. Its lateral stripes are covered with brown, the edge of the lateral margin, however, again with gray-whitish dust. The abdomen is more green, less coppery and less bright than in the male. The dust upon the pleurae and upon the fore coxae is less yellow. The fore femora are of a similar structure as those of the male; the fore tibiae without a thorn on the inside, elongated at the tip in a much smaller and sharper tooth, before which there is no excision; otherwise the feet are plain, the middle and hind femora straight and much more slender than in the male; middle and hind tibiae only sparsely beset with scattered bristles.

Observation.—As I do not possess a North American female of *S. spinipes*, I have prepared the above description from Swedish specimens."

Type locality.—Lapland. Also from Hudson Bay Territory.

4. SCELLUS MONSTROSUS Osten Sacken.

Plate 1, fig. 6; plate 2, figs. 13 and 20; plate 3, figs. 26 and 27.

Scellus monstrosus OSTEN SACKEN, Western Diptera, 1877, p. 319.

"*Male*.—Thorax brownish-gray, with several rows of brown dots on which the bristles are inserted, and two approximate brown lines; wings tinged with brownish; anal appendages of the male at least as long as the abdomen, white; their end brownish-yellow, inverted spoon-shaped. Length 6-7 mm. (without the appendages).

"Face brownish-ocher-yellow; antennae black; front dull greenish gray; inferior orbit beset with yellow hair; the superior with stiff, black spines. Ground color of the thorax concealed under a thick grayish-brown pollen; three rows of brown dots, in linear groups of three or four, bear the usual dorsal bristles; on each side of the intermediate row there is an uninterrupted brown line reaching to the scutellum; the coppery ground color of the thorax is visible on the dorsum above the wings; a large, coppery, shining spot on the upper part of the pleurae; a smaller one at the foot of the halteres; abdomen copper-colored; halteres yellow, the extreme root brownish; tegulae with yellow cilia. Anal appendages at least as long as the abdomen, ribbonlike, white, except at the root, which is brown; they are angularly bent in the middle, the latter half expanded, inverted spoon-shaped yellowish-brown, bearing a fan-shaped tuft of long hairs at the end. Legs metallic-coppery; tarsi black. Lobe at the end of the front tibiae very large, deeply emarginate at the base; the long spine on the inner side of the tibiae appears bifid, from a strong bristle near its tip; middle tibiae, besides some stiff bristles on the upper and under side, with a fringe of soft hairs on the hind side, which become longer toward the tip, and end there in a tuft of curly hair; the hind tibiae end in a very long curved spine, hook-shaped at the tip (if stretched out, it would be nearly as long as one-third of the first joint of the hind tarsi); a smaller spine near it. Wings yellowish at the root, otherwise tinged with brown, especially between the first and third veins; costal cell tinged with yellowish; a brown cloud on the great cross-vein; another on the curvature of the fourth vein; some subhyaline spots near the root of the wings, the most conspicuous of which is on the proximal end of the third posterior cell."

Habitat.—British Columbia (Crotch). A single male.

Type locality.—British Columbia (Crotch).

Distribution.—Tennessee Pass, Colorado, July 24, 1917, J. M. Aldrich, collector. Burns, Oregon, B. G. Thompson, collector. Lake View, Montana, August 3, 1920, A. N. Caudell, collector. Yellowstone Park, Canyon Camp, August 12, 1918, A. L. Melander, collector (A. L. M.).

5. *SCELLUS VIGIL* Osten Sacken.

Plate 1, fig. 2; plate 2, figs. 10 and 23; plate 3, fig. 30.

Scellus vigil OSTEN SACKEN, Western Diptera, 1877, p. 318.

“*Male*.—Thorax grayish above, with two approximate brown lines; abdomen and pleurae copper-colored, partly metallic-greenish; wings subhyaline, with a double grayish spot on the great cross-vein, and a similar larger spot on the last section of the fourth vein; anal appendages of the male narrow, white, blackish at the base. Length 3.5–4.5 mm.

“Face brownish-yellow, narrow above, broader below; antennae black; the ground-color of the front is concealed under a grayish pollen. Thorax above with a dense gray pollen almost concealing the coppery ground color; two approximate brown lines in its middle stop some distance before reaching the scutellum; between their end and the scutellum, an opaque dark brown spot. Pleurae coppery, with greenish reflection, slightly pruinose. The scutellum, with two bristles, is greenish, coppery, or purplish. Abdomen (very much shrunken and withdrawn in my specimens) coppery, pruinose above, brilliant coppery, and greenish on the sides. Anal appendages ribbonlike, white, blackish near the root. Legs metallic-green or coppery, with purple reflections; tarsi black. The structure of the legs agrees in the main with the description of the legs of *S. filifer* Loew.³ Halteres whitish. Wings subhyaline, their root yellowish; costa yellowish-brown before its junction with the first vein; a double grayish spot on the great cross-vein, and a similar larger spot on the last section of the fourth vein; the latter is well defined on the proximal and evanescent on the distal side.”

Habitat.—Webber Lake, Sierra Nevada, July 22–24. Three males found resting on stones on hillsides.

This species differs from *S. filifer* Loew (Fort Resolution, Hudson Bay Territory) in the coloring of the wings, which have no longitudinal gray streaks between the veins, the color of the anal appendages, which are not yellow at the end, etc. Nevertheless, the resemblance between the two species must be very great.

Type locality.—Webber Lake, Sierra Nevada.

Distribution.—Pullman, Washington, May 25, 1908. Moscow Mountain, Idaho, June 17, 1918, July 5, 1919, July 9, 1920 (A. L. M.). Moscow, Idaho, no date. Pullman, Washington, May 31, 1913.

6. *SCELLUS AMPLUS* Curran.

Plate 1, fig. 3; plate 2, figs. 11 and 21.

Scellus amplus CURRAN, Can. Ent., vol. 55, 1923, p. 73.

“Middle tibiae swollen and polished at apex, with a long spine just before the swelling beneath; front basitarsus with a long spine

³ Monograph, pt. 2, p. 210.

below before the middle and two or three smaller ones. Allied to *filiferus* Loew, but that species has numerous shorter spines on front basitarsi and dense ciliate hairs behind on the middle tibiae.

“Length, almost 5 mm., wing 6.5 mm.

“*Male*.—Face narrow, widened below, ocher-yellow; front yellow with some ocher pollen; the ground color bronze green; occiput yellow, with cupreous reflections. Palpi yellow, proboscis black. Antennae black, shining; third joint elongate oval, subpointed above, a little swollen at the origin of the arista; not shining, with short whitish hair. Basal portion rather thick; last section slender, curved about its middle.

“Thorax cupreous bronzed, rather thickly grayish pollinose, but not completely obscuring the ground color, dorsum with two narrowly separated median brownish stripes, abbreviated behind, and an obscure similarly colored stripe above the wings. Each of the few hairs arises from a black spot. Pleura much less densely pollinose. Scutellum moderately pollinose.

“Legs black, femora bronzed, tibiae more greenish. Fore femora thick basally, gradually tapering. Anterior tibiae with the sub-basal spur black, its upper surface yellow pollinose, and with pale yellowish hairs; just below the origin of the spur, on the outer side a long black spine, with a shorter one above it; apex of tibiae produced as a rather broad, blunt lobe, which is of about the same length as the last tarsal joint; the lobe behind with three or four black bristles, its anterior and apical margin with a fringe of short, black hairs; immediately above the lobe in front the tibia is fringed with yellow hairs, dense and longer apically; beneath toward the front is a row of black bristles, longer apically, behind, on the swollen subbasal fourth with much longer bristles. Front basitarsi postero-ventrally, just before the middle, with a long bristle and two or three short ones before it on posterior surface. Middle femora strongly arcuate, the apical two-thirds swollen, beneath, on the hind surface with a single row of black bristles, but these are mixed with the long, bristly hairs on the upper half, and not distinguishable; anterodorsally is a row of five or six bristles on the apical third. Middle tibiae also moderately arcuate and swollen on basal portion, the posterior surface flattened; bearing long, not very abundant hairs which appear slightly tufted, and especially marked on the swollen area; above the middle on the outer side with two bristles and a slightly stouter one just before the apex; apex swollen and polished, more extensively so on the posterior side; just above this area on the inner side a stout, apically curved bristle. Middle basitarsi on either side below with a row of long spines. Hind femora laterally compressed, bearing dorsally two subapical bristles and a posterior one just before the apical dorsal one. Hind tibiae a little

curved outward when viewed from the side; their outer surface with about four equally spaced spines, their inner, posterior apical half with nine similar spines not in a regular row; the opposite surface with more or less regular hairs. Coxae grayish-white pollinose, with fine yellow pile, the front ones with a row of black bristles.

"Wings largely clear hyaline, but beyond the middle the cells are cinereous, fading out apically; on the cross-vein is a double, fused spot occupying all either end, and a second spot on the curve of the last section of the fourth vein; there is also a streak in the discal cell, and the area behind the fifth vein from the tip of the sixth vein is darker, but fades out marginally.

"Abdomen on basal four segments and side of the fifth, coppery, the fifth and sixth bronze green; except the sixth segment, rather abundantly yellowish-gray pollinose. Filaments black basally, becoming brown, the apical half yellow: the basal portion, which is directed to the upper margin of the abdomen and about one-fifth of the second portion, which is directed backward, is black; from there to about the second third of this portion it is yellowish brown, the last third yellow; the second portion is terminated in a broad, inferior ciliae of yellow hairs, which extend all along the yellow portion, and the third portion curves obliquely upward from this point, again curving back, but the pointed end curved a little upward; the outer upper margin of the last section, not reaching to the tip, is ciliate, with pale yellowish or white hairs, which are directed downward so as to cover the whole of this side of the filament. The terminal lamellae are fuscous, broadened and then ending in a pair of parallel processes, which are long, flattened and subpointed, each bearing four or five not long black hairs apically.

"*Holotype*—Male, Saanich, British Columbia, May 17, 1919 (W. Downes), No. 554 in the Canadian National Collection, Ottawa."

In looking over the above description I find there are some details of some of the characters which have been omitted. As I had the following description written for this new species I thought it would be of interest and important enough to give it as I had intended to publish it.

Medium-sized species bronze, gray dusted; wings tinged with yellowish-brown (more so in the female); antennae short and normal.

Dorsum of thorax opaque, ashen gray with two approximated, parallel, central, dark, dull brown stripes extending backward to the penultimate pair of bristles, from here the stripe is solid, dark bronze, metallic (the width of this stripe almost equal to the space between the two stripes); the bristles of the two central rows are each located on a brown spot; halteres yellowish white; wings more hyaline in the male, decidedly brownish in the female; the costal vein to the tip of the first vein and the entire first vein yellow, all the

other veins are blackish; male wing has a faint double spot on the posterior cross-vein and a faint spot at the bend of the apical segment of the fourth vein; female wing with the above spots much darker and a large, definite, light spot below the fifth vein in front of the basal cell; male appendage narrow with a nearly quadrate enlargement in the middle.

Length.—Male, 3.5 mm. (without appendages); female, 5 mm.

The narrow face dull ocher, broader below; front dull gray. Pleura bronze colored with a thick, opaque, gray dust; just in front of the halteres is a well-developed fingerlike tubercle. The scutellum same color as the pleurae and with two large bristles at the apex. The abdomen is dark, metallic bronze, not so thickly dusted as the thorax; broadly along the apical edge of the segments and toward the outer edges the dust is whitish. Anal appendages of the male white and ribbonlike on the apical half with a fine fringe of short white hairs on inner edge; basal portion is blackish; in the middle is a broad area which is nearly quadrate with a fringe of brownish-yellow hairs along the inner and outer edge, that on the inner edge is longer; other parts of the genitalia are brownish with yellow hairs. Coxae of a blackish bronze color with whitish dust. Feet black, the femora with a more coppery, the tibiae with a more metallic-greenish tinge. Fore femora much thicker at the base, on under side strong black bristles of various length. Middle femora thickened on apical two-thirds, bent inward and downward at the basal third. Hind femora thickened, the basal edge is straight, the upper edge is arched. Fore tibiae thickened on the apical two-thirds, near the basal third on the inner side is a thick spikelike projection, on the front inner side is a long bristle, numerous short thick spinelike bristles on the under and inner edge. Middle tibiae slightly thickened at base, two faint curves; on the under and outer side is a long tuft of curved hairs, more curly on outside; numerous bristlelike hairs on inner under side near the apex; on under side near the apex is a very thick spine bent at right angles. Hind tibiae normal with several short spinelike bristles on the apical third, at the apex are three thick bristles, one is sharply bent at apex. Tarsi all simple, black; front metatarsus with a long bristle on the under side below the middle; middle metatarsus has several heavy bristles on under side, four very long ones are arranged in a row. Wings faintly infuscated on the apical half from the fourth vein to the costa, a small cloud near the middle of the outer section of the fourth vein and a cloud on the third cross-vein. The first vein entire and the costal vein from the tip of the first vein to the base is pale yellow, all the other veins brownish-black. Halteres yellow with base of stem blackish. Tegulae and cilia pale yellow.

Type locality.—Saanich, British Columbia, May 17, 1919, W. Downes.

Distribution.—Whitehall, Montana, July 11, 1917, H. G. Dyar, collector. Forest Grove, Oreg., September 30, 1918, F. R. Cole, collector. Gold Creek, Mont., July 29, 1918. Moscow Mountain, Idaho, July 5, 1919, June 26, 1920, A. L. Melander, collector.

7. *SCELLUS FILIFERUS* Loew.

Plate 1, fig. 5; plate 2, figs. 14 and 17; plate 3, fig. 29.

Scellus filiferus LOEW, Monographs of North American Diptera, 1864, pt. 2, p. 209.

Male.—"Thoracis dorso cinereo, opaco, abdomine cupreo, cinereo-pollinose, subopaco, halteribus albidis, alis hyalinis in basi subalbidis, apicem versus cinereo-striatis punctisque duobus majusculis nigricantibus, altero didymo in vena transversa posteriore, altero simplici in ultimo venae longitudinalis quartae segmento; lamellis analibus maris angustissimis albis, in basi nigris, in summo apice flavicantibus.

"Upper side of the thorax gray, opaque; abdomen copper-colored with grayish dust, rather opaque; halteres whitish; wings hyaline, whitish near the root with gray stripes toward the tip; upon the posterior transverse vein with a double blackish spot of considerable size, and with a similar, but single spot upon the last segment of the fourth longitudinal vein; the anal appendages of the male are very narrow, white, black at the basis and yellowish at the extreme tip. Long. corp. 0.15. Long. al. 0.20.

"The narrow face is ocher-yellow. Antennae black. Front with white dust. Thorax blackish-bronze colored with copper-colored reflections; on the upper side with thick whitish dust, which almost conceals the ground color, opaque; upon the pleurae with a somewhat thinner dust of the same color. Upon the middle of the upper side there are two narrow parallel lines of a darker color, which do not reach as far as the posterior margin of the thorax. The scutellum, which has two bristles, is of the same color as the pleurae. The ground color of the abdomen is like that of the thorax, is, however, more distinct, not being so thickly covered with dust; toward the lateral margin of the abdomen, where the dust almost entirely disappears, there is a bright copper-colored luster. The anal appendages of the male, which are turned upward at the tip, are not ribbonlike, as in the previously described three species, but filiform, white, black at the root, at the tip pale yellowish to a small extent; on the middle of their exterior margin there is a dense beard of delicate little white hairs; there is no tuft of hairs at their tip. Between them, in the anal region, only a moderate number of short delicate little hairs, which may be easily overlooked, are inserted. Coxae of a blackish-

bronze color with whitish dust; the fore coxae have, besides the pale, and, on account of its shortness and delicacy, almost imperceptible pubescence, quite a number of black bristles. Feet black, the femora with a more coppery, the tibiae with a more metallic-greenish, tinge. Fore femora rather strongly thickened toward the basis, on the under side with strong black bristles of different length, on the front side only with an imperfect row of short black bristles. Middle femora moderately thickened and strongly curved, on the under side of the basis with two or three not very long, on the apical half with a large number of long, straight and erect bristlelike black hairs. Hind femora plain, of middling stoutness, on the under side with bristlelike short hairs; on the upper side with two longer black bristles, of which the larger is not far from its tip. Fore tibiae strong, with a large and sharp thorn on the front side, not far from the basis; elongated at the tip into a large clumsy tooth; the under side of the tibia, provided with bristles, has no distinct excision before this tooth. Middle tibiae long, straight, a little stronger in the neighborhood of the basis: the first two-thirds of their under and posterior side are fringed with long curly black hairs, the end of the under and front side, however, with long and stiff black bristles; on the under side, where these bristles begin, there is between them a somewhat curved black thorn. Hind tibiae straight, on the under side with short but very strong black bristles, one of which, being not far from the tip, is remarkable for its greater length; on the outside of the tip of the tibiae a few shorter and one somewhat longer curved bristle are inserted. Tarsi plain, their joints of decreasing length; the first joint of the fore and middle tarsi on the under side with black bristles, which are of considerable length near the basis of the tarsi, but decrease in length very rapidly so as to be very short on the larger portion of the joint; the under side of the first joint of the hind tarsi is everywhere beset with short black bristles. Halteres pale-yellowish, but the basis of the knob somewhat brownish. Wings hyaline; almost the whole basal third appears somewhat whitish when seen in a certain direction; grayish stripes along the second half of the second and third longitudinal veins, likewise along the tip of the last segment of the fourth and the greater portion of the fifth longitudinal vein; there is also a gray streak between the third and fourth longitudinal veins; upon the posterior transverse vein there is a blackish-gray double spot, and upon the middle of the last segment of the fourth longitudinal vein there is a larger rounded blackish-gray spot, which is less sharply defined on the side turned toward the tip of the wing."

Habitat.—Fort Resolution, Hudson Bay Territory (Kennicott).

Type locality.—Fort Resolution, Hudson Bay Territory (Kennicott).

Distribution.—Tennessee Pass, Colorado, July 8. Fairbanks, Alaska, June 30 to July 4, 1921, J. M. Aldrich, collector. Moscow, Idaho, no date. Custer, South Dakota, no date. Tabernash, Colorado, August, E. S. Tucker, collector. Mountains near Sheridan, Wyoming. Mount Constitution, Washington (Orcas Island) July 7, 1905. Bozeman, Montana, 4,800 feet, June 21, 1900, R. E. Cooley, collector. Bozeman, Montana, 4,800 feet, July 8, 1901, E. J. S. Moore, collector; Moscow Mountain, Idaho, July 8, 1911. Yellowstone Lake, Montana, August 8, 1918. Moscow Mountain, Idaho, July 5, 1919, A. L. Melander, collector (A. L. M.). Farewell Creek Saskatchewan (C. W. J.).

8. *SCELLUS AVIDUS* Loew.

Plate 1, fig. 7; plate 2, figs. 16 and 22.

Scellus avidus LOEW, Monographs of North American Diptera, 1864, pt. 2, p. 207.

Male.—"Thoracis dorso aeneo-nigro, nitido, margine et linea, media cinereo-pollinosis, pleurarum plaga supera, abdomineque ex viridi laete cupreis, nitidissimis, halteribus albis, alis cinereis, punctis duobus nigris, altero in vena transversa posteriore, altero in ultimo venae longitudinalis quartae segmento; lamellis analibus maris albis, basi et apice tamen nigris.

"Upper side of the thorax bronze-black, shining, its margin and a middle line dusted with gray powder; a large spot on the upper part of the pleurae and the abdomen bright greenish-copper colored, very shining; halteres white; wings gray with two large dots, one on the posterior transverse vein, the other upon the last segment of the fourth longitudinal vein; the anal appendages of the male are white, but their basis and tip are black. Long. corp. 0.17. Long. al. 0.21.

"*Male.*—Face somewhat broader than in the previous two species, dusted with bright ocher-yellow powder, opaque. Front with white dust. Antennae black. Most of the upper side of the thorax bright bronze-black with faint violet reflections; its whole margin has a rather broad border dusted with a whitish-gray powder, and therefore opaque; there is also a narrow middle line, which is much abbreviated behind and likewise dusted with a white-grayish powder. The upper part of the pleurae, from the shoulder to the root of the wings, is entirely without dust, metallic greenish-copper colored, very much shining; as I have only a single specimen, I am unable to judge with certainty whether this large shining spot is also present in fresh specimens, as I believe it to be, or whether in the above-described specimen it is merely rubbed off; the other parts of the pleurae are dusted with gray. The scutellum, which has two bristles, is greenish-bronze colored and opaque. The very shining abdomen is of a bright coppery color, but assumes, when its surface

is looked upon in a very oblique direction, a green or at least brassy-yellow color. The tapelike anal appendages are very long, somewhat blackened at the basis, and still more so at the tip which is turned upward and there beset with a small tuft of blackish hair directed backward; otherwise their margins are not hairy, although there is a single black bristle where the blackening of the tip begins on the under side in the vicinity of its inner margin. Near the anus between the above-mentioned two appendages there are a few small black hairs. Coxae greenish-black, with white-yellowish dust; the foremost have, besides some pale hairs, almost imperceptible on account of their shortness and delicacy, a few black bristles before and upon the tip. Feet black with a metallic-green reflection, which gradually disappears upon the last joints of the tarsi. Fore femora toward their root not so much thickened as in the two preceding species, beset with strong black bristles of different lengths on the under side, on the front side with a sparse row of short black bristles. Middle and hind femora long, slender, straight, of a plain structure, beset on the second half with a moderate number of short, scattered black bristles. The moderately stout fore tibiae bear on their anterior side, not far from the basis, a short black thorn and are prolonged at their tip into a large, somewhat clumsy but sharp tooth, before which the under side of the tibia, provided with bristles, has a very small excision. The middle tibiae are long and slender; on the upper side they are beset with only three, on the anterior side with about seven scattered bristles of very moderate length; on the other half of their hind side they bear long curly black hairs. Hind tibiae slender, straight, rather long, only on the second half with a few isolated black bristles; the bristles on the outside of their tips are also only short. Tarsi plain, their joints of decreasing length; the first joint of the fore and middle tarsi on the under side with numerous black bristles, the first joint of the hind tarsi only with a few and much shorter bristles. Wings hyaline-gray, somewhat darker toward the tip on account of the gray margin of the second, third, and fourth longitudinal veins; upon the posterior transverse vein and upon the middle of the last segment of the fourth longitudinal vein there is a gray-blackish spot of considerable size."

Habitat.—Fort Resolution, Hudson Bay Territory (Kennicott).

Type locality.—Fort Resolution, Hudson Bay Territory (Kennicott).

Distribution.—Hunter's Creek, Wyoming, September 11, 1895. Tennessee Pass, Colorado, July 24, 1917, J. M. Aldrich, collector. Colo. 2009 U.S.N.M. Cumbers, New Mexico, August 14, 1901, 10,000 feet altitude, Dyar and Caudell, collectors. Hunter's Creek, Wyoming, September 11, 1895, Colo. 2009 (A. L. M.). High River, Alberta, Owen Bryant, collector (C. W. J.).

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EXPLANATION OF PLATES.

All drawings made by C. T. Greene.

PLATE 1.

- Fig. 1. *Scellus spinimanus* (Zetterstedt). Abdomen of male.
 2. *Scellus vigil* Osten Sacken. Abdomen of male.
 3. *Scellus amplus* Curran. Abdomen of male.
 4. *Scellus exustus* (Walker). Abdomen of male.
 5. *Scellus filiferus* Loew. Abdomen of male.
 6. *Scellus monstrosus* Osten Sacken. Abdomen of male.
 7. *Scellus avidus* Loew. Abdomen of male.
 8. *Scellus virago* Aldrich. Abdomen of male.

PLATE 2.

- Fig. 9. *Scellus spinimanus* (Zetterstedt). Front leg of male.
 10. *Scellus vigil* Osten Sacken. Front leg of male.
 11. *Scellus amplus* Curran. Front leg of male.
 12. *Scellus exustus* (Walker). Front leg of male.
 13. *Scellus monstrosus* Osten Sacken. Front leg of male.
 14. *Scellus filiferus* Loew. Front leg of male.
 15. *Scellus virago* Aldrich. Front leg of male.
 16. *Scellus avidus* Loew. Front leg of male.
 17. *Scellus filiferus* Loew. Front leg of female.
 18. *Scellus exustus* (Walker). Front leg of female.
 19. *Scellus virago* Aldrich. Front leg of female.
 20. *Scellus monstrosus* Osten Sacken. Front leg of female.
 21. *Scellus amplus* Curran. Front leg of female.
 22. *Scellus avidus* Loew. Front leg of female.
 23. *Scellus vigil* Osten Sacken. Front leg of female.

PLATE 3.

- Fig. 24. *Scellus spinimanus* (Zetterstedt). Middle leg of male.
 25. *Scellus exustus* (Walker). Hind leg of male.
 26. *Scellus monstrosus* Osten Sacken. Middle leg of male.
 27. *Scellus monstrosus* Osten Sacken. Hind leg of male.
 28. *Scellus virago* Aldrich. Middle tibia of male.
 29. *Scellus filiferus* Loew. Middle leg of male.
 30. *Scellus vigil* Osten Sacken. Middle leg of male.